CLAIMS

1. Semiconductor ultrafine particles, which maintain 50% or more fluorescence quantum yield of photoluminescence when the particles are kept dispersed in water at 10°C to 20°C in air for five days.

2. Semiconductor ultrafine particles according to Claim 1, wherein the particles belong to Group II-VI semiconductor ultrafine particles.

3. Semiconductor ultrafine particles according to Claim 2, wherein the fluorescence quantum yield is measured when they are kept dispersed in an aqueous solution having a pH of 10 to 12 comprising a water-soluble compound containing a Group II element (about 0.001 to about 0.05 mol/L) as a starting material of the semiconductor ultrafine particles of Group II-VI and a surfactant (about 1 to 1.5 mol per mol of the Group II element contained in the aqueous solution).

4. Semiconductor ultrafine particles according to Claim 2, wherein the particles are cadmium telluride.

5. A fluorescent material which is obtained by dispersing semiconductor ultrafine particles according to any one of Claims 1 to 4 in a glass matrix formed by a sol-gel process.

6. A fluorescent material wherein semiconductor ultrafine particles with 20% or more fluorescence quantum yield of photoluminescence are dispersed in a glass matrix formed by a sol-gel process.

7. A fluorescent material according to Claim 6, wherein a concentration of semiconductor ultrafine particles in the glass matrix is $2 \times 10^{-6}$ to $2 \times 10^{-4}$ mol/L.

8. A fluorescent material according to any one of Claims

5 to 7, wherein the glass matrix is formed by a sol-gel process using an organoalkoxysilane as a starting material.

9. A fluorescent material according to any one of Claims 5 to 8, wherein semiconductor ultrafine particles are dispersed in the glass matrix, the particles having a fluorescence quantum yield of photoluminescence which is decreased by 20% or less when the fluorescent material is left at room temperature in air for eight months.

10. A method for manufacturing semiconductor ultrafine particles according to any one of Claims 2 to 4;

the method comprising introducing a compound containing a Group VI element under an inert atmosphere into an aqueous alkaline solution in which a water-soluble compound containing a Group II element and a surfactant are dissolved; wherein

the amount of surfactant is about 1 to about 1.5 mol per 1 mol of the Group II element; and

ultrapure water in which the specific resistance is 18 MΩ•cm or more and the total amount of organic compound (TOC) contained therein is 5 ppb or less is used as a solvent.

11. A method of manufacturing a fluorescent material according to any one of Claims 5 to 9, the method comprising adding a dispersion of semiconductor ultrafine particles according to any one of Claims 1 to 4 to a sol solution containing a metal alkoxide, to cause hydrolysis and condensation polymerization, thereby forming a glass matrix.

12. A method of manufacturing a fluorescent material according to Claim 11, the method comprising adding a dispersion of semiconductor ultrafine particles according to any one of Claims 1 to 4 to a sol solution containing a metal alkoxide, to cause hydrolysis and condensation polymerization, thereby forming a glass matrix; wherein

the dispersion of the semiconductor ultrafine particles is

added when the viscosity of the sol solution containing a metal alkoxide reaches 300 centipoises to 3000 centipoises.

13. A light emitting device comprising:

a light emitter composed of a fluorescent material according to any one of Claims 5 to 9; and

a light source which emits excitation light with a wavelength of 320 nm to 600 nm for exciting the fluorescent material.